May 7, 2004

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
12th Street Lobby, TW-A325
Washington, D.C. 20554

Re: *Ex Parte* Presentation
WT Docket 02-55

Dear Ms. Dortch:

On April 29, 2004, CTIA filed a letter with the Commission in which it proposed a framework to resolve the above captioned proceeding, including the potential realignment of the 800 MHz band.[1] This proposal includes a grant of spectrum in the 2.1 GHz band to Nextel and a requirement for Nextel to deposit a minimum of $3 billion into a trust fund for Public Safety and Critical Infrastructure licensees that would be affected by the band realignment.[2] The CTIA proposal, as compared to the Consensus Plan, would offer substantial benefits to Public Safety licensees through much higher funding and a far more certain relocation process. Nextel would also benefit because it would receive 10 MHz of contiguous 2.1 GHz spectrum – the same spectrum it proposed to receive under its original proposal.[3] Nextel would only receive this spectrum, however, after it has completed rebanding, thereby ensuring that Public Safety's needs are met.

[1] *See* Letter from Steve Largent, President & CEO of CTIA, to Chairman Powell and other Commissioners, WT Docket No. 02-55, April 29, 2004 ("CTIA Proposal").

[2] These licensees would include those entities that are currently included within the scope of the "Consensus Plan" proposal, which covers not only Public Safety and Critical Infrastructure licensees, but also Business and Industrial/Land Transportation ("B/ILT") licensees.

[3] *See "Promoting Public Safety Communications: Realigning the 800 MHz Land Mobile Radio Band to Rectify Commercial Mobile Radio – Public Safety Interference and Allocate Additional Spectrum to Meet Critical Public Safety Needs,"* White Paper filed by Nextel Communications, November 21, 2001, in which Nextel proposed that it receive 2020-2025/2170-2175 MHz (referred to here as the "2.1 GHz" band) as compensation for its contributions under the proposed approach.

Despite its initial representation to the Commission that the 2.1 GHz band was suitable replacement spectrum, Nextel now objects to the use of that band.[4] It argues "there are numerous technical and operational obstacles that raise doubts about the use of this spectrum for CMRS operations," including higher cost for clearing incumbents, less favorable propagation characteristics, and higher cost for developing network and customer equipment.

CTIA believes that the 1.9 GHz and 2.1 GHz bands are both well suited to support commercial mobile services, and would provide the contiguous spectrum necessary to support advanced wireless technologies. As discussed in the following sections, CTIA believes that the characteristics of the 2.1 GHz band are in fact comparable to the 1.9 GHz band, and the differences are of far less consequence than Nextel suggested in its April 22, 2004 *ex parte.*

Most importantly, it's essential to remember that the focus of this entire proceeding is to remedy Public Safety interference. The choice of 1.9 vs. 2.1 GHz does not affect the process of relocating Public Safety at all. However, when combined with the overall proposal that CTIA submitted on April 29th, which provides a $3 billion trust fund for Public Safety, Public Safety's needs are clearly more effectively met through the package CTIA has proposed that includes 2.1 GHz.

A. BAND CLEARING COSTS

Both the 1.9 GHz and 2.1 GHz bands are currently encumbered by the operations of the Broadcast Auxiliary Service ("BAS"). These operations would affect the base transmit segment of 1.9 GHz (i.e., 1990-1995 MHz) and the mobile transmit segment of 2.1 GHz (i.e., 2020-2025 MHz). While we do not have detailed information regarding the current use of spectrum allocated to BAS, we believe it is reasonable to assume that the costs of clearing BAS from 5 MHz of 2.1 GHz spectrum would be comparable to the costs of clearing 5 MHz of 1.9 GHz spectrum. Nextel agrees with this assessment.[5]

The base transmit segment of 2.1 GHz (*i.e.*, 2170-2175 MHz) is currently occupied by fixed microwave licensees, whereas the mobile transmit segment of 1.9 GHz (*i.e.*, 1910-1915 MHz) is used by unlicensed PCS devices. Nextel has estimated that the cost of clearing the 2170-2175 MHz band would be approximately $150 million, while the cost of clearing the 1910-1915 MHz band would be approximately $15 million.[6] Even assuming these figures are accurate, given that the cost of relocating fixed microwave systems would be incurred over several years, the net present value of the difference would be less than $100 million. While we cannot substantiate Nextel's

[4] *See* Letter from Nextel to Marlene H. Dortch, Secretary of the Federal Communications Commission, ("*Nextel Letter*"), WT Docket No. 02-55, April 22, 2004.

[5] *Id* at 7.

[6] *Id*. CTIA notes that the 2.1 GHz fixed microwave band has not had a primary license granted since 1996. Furthermore, some fixed microwave licensees are likely to have dismantled their facilities or moved to other spectrum in light of the Commission's reallocation decision. Consequently, Nextel's estimates for this band are likely to be high.

estimates, we do not believe this difference is significant relative to the multi-billion dollar value of the 2.1 GHz spectrum.

It would also be feasible to substitute other spectrum in the 2155-2180 MHz band for the 2170-2175 MHz band originally requested by Nextel. One suitable substitute would be the 2175-2180 MHz band. This band is also used by fixed microwave licensees but has fewer incumbent systems in operation,[7] which means that use of this band would result in lower relocation costs. Another option would be the 2155-2160 MHz band, which is currently licensed to the Multipoint Distribution Service ("MDS"). This band is deployed with fewer systems than the 2170-2175 MHz band currently used for fixed microwave systems, and would require fewer relocations. This would further reduce any differences in band clearing costs between 1.9 GHz and 2.1 GHz, and presumably satisfy Nextel's desire to have spectrum adjacent to the 2110-2155 MHz spectrum that is to be licensed for Advanced Wireless Services ("AWS").

Nextel claims that its original 2.1 GHz proposal was premised on the assumption that the 2170-2175 MHz band would be adjacent to spectrum expected to be used for AWS – i.e., 2110-2170 MHz, and thus, would yield to Nextel significant economies of scale.[8] At the time Nextel filed its initial White Paper, however, it was far from clear that spectrum adjacent to 2170 MHz would be made available for AWS. Moreover, it is not necessary to have adjacent spectrum to ensure that there are economies of scale in the use of 2.1 GHz spectrum. Spectrum in the 2.1 GHz band has been identified worldwide for advanced wireless services, and we expect such harmonization to produce significant scale economies. There may be additional efficiencies that would result from one operator having the 2170-2175 MHz band and spectrum adjacent to it, but Nextel would have had no guarantee that it would have been the winner of that block of AWS spectrum in any event. Even if Nextel's claim about adjacent spectrum were valid, however, that is still no basis to reject a 2.1 GHz solution, since the 2155-2160 MHz band is available and adjacent to AWS.

PROPAGATION CHARACTERISTICS

Higher frequency bands generally have a more limited range due to greater propagation losses at higher frequencies. However, the 1.9 GHz and 2.1 GHz bands are relatively close in spectrum. Consequently, they would have similar propagation characteristics, and a wireless operator should not suffer cost penalties due to operation in the 2.1 GHz band.

In the reverse link (mobile to base), the 1.9 GHz and 2.1 GHz bands are separated by only 110 MHz. Based purely on free space loss, at a given distance, the differential reverse link path loss between the 1.9 GHz and 2.1 GHz bands is only 0.48 dB. Using

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[7] According to the FCC's database, there are approximately 700 fixed microwave links currently licensed in that band, which is significantly less than the number of links licensed at 2170-2175 MHz. In its April 22 letter, Nextel indicated that there are approximately 900 fixed microwave links in the 2170-2175 MHz band. *Nextel Letter* at 7.

[8] *Nextel Letter* at footnote 12.

the well-accepted COST 231 Hata model,[9] the difference is very small, approximately 0.6 dB (0.5 dB) in a suburban (rural) area. In the forward link (base to mobile), the 1.9 GHz and 2.1 GHz bands are separated by 180 MHz. This difference in frequency results in a differential forward link path loss of approximately 1.1 dB (0.8 dB) for a suburban (rural) area.

These estimates do not take into account the likelihood for larger antenna gains at 2.1 GHz and/or the use of base station amplifiers delivering a greater output power. When deploying mobile systems operating in the 800 MHz (cellular) and 1.9 GHz (PCS) bands, wireless operators typically employ antenna apertures that are maintained at a constant value over both frequency bands. Thus, PCS frequencies typically have antenna gains that are 3 dB higher than cellular frequencies, partially offsetting the radio propagation differences between the two bands. In the same manner, 2.1 GHz band operators would likely use antennas with the same aperture as PCS antennas, and therefore would experience a slightly higher antenna gain that would offset the differential path loss between the 1.9 GHz and 2.1 GHz bands.

In interference- or capacity-limited situations, such as in urban areas, slight differences in radio propagation are not an issue. For these types of systems, the number of cells required to provide service is determined by the traffic density and distribution of traffic, not by path loss. To provide increased system capacity, a larger number of cell sites are used that are designed to operate at lower power levels and cover smaller areas. In fact, capacity-limited systems actually perform slightly better at higher frequencies because interference from adjacent cells is reduced.

In coverage-limited situations, such as in rural areas, propagation differences may need to be considered. For these types of systems, the reverse link is typically the limiting factor. As has already been noted, the use of 2.1 GHz versus 1.9 GHz would result in a differential path loss of approximately 0.5 dB in a rural environment. This translates into a small loss of cell range of approximately 3% and a loss in cell area of 6%. However, as previously noted, system designers typically compensate for these slight differences in path loss by employing a variety of standard engineering practices, including the use of different antennas or higher power amplifiers.

EQUIPMENT COSTS

The 1.9 GHz and 2.1 GHz bands are both in portions of the radio spectrum that are ideally suited for mobile services, and both would provide the contiguous spectrum that is necessary to support advanced wireless technologies (e.g., CDMA) and broadband wireless services. The PCS spectrum adjacent to the 1.9 GHz band is already being used for advanced wireless technologies, and equipment is already widely deployed in this band. While the 2.1 GHz band is not currently being deployed in the U.S., spectrum in this band is being deployed with advanced wireless technologies (e.g., UMTS) in Europe and other parts of the world, consistent with the International Telecommunications Union's identification of spectrum for advanced wireless services (denoted IMT-2000).

[9] COST 231 Hata is a model for predicting radio frequency propagation.

This worldwide identification of spectrum for IMT-2000 is what prompted the FCC to allocate the 2110-2155 MHz band to AWS, noting that it would provide some harmonization with similar spectrum allocations around the world. The 2.1 GHz band would be similarly harmonized with use of the band worldwide, and thus, would ultimately benefit from the same economies of scale.

At present, neither network nor customer equipment is currently available in either the 1.9 GHz "G" block (1910-1915/1990-1995 MHz) or 2.1 GHz (2020-2025/2170-2175 MHz) bands. However, we anticipate that manufacturers will quickly gear up to provide such equipment if either, or both, of these bands is made available for commercial use. This will be particularly true if licenses are made available on a nationwide basis. Initially, the bill of materials costs for 2.1 GHz equipment may be slightly higher than in the 1.9 GHz "G" block because equipment already has been deployed in the 1.9 GHz bands adjacent to the "G" block. Over the longer term, however, we do not expect there to be any significant differences in the costs of 1.9 GHz and 2.1 GHz equipment.[10]

VALUATION OF 2.1 GHz

Contrary to Nextel's very recent claims, the above technical and other information on band clearing costs, propagation characteristics and equipment costs makes clear that the 2.1 GHz and 1.9 GHz blocks are comparable for purposes of CMRS operations, lending further support for CTIA's April 29th proposal. CTIA acknowledges that individual companies may assess the relative value of 1.9 GHz and 2.1 GHz spectrum somewhat differently. For example, wireless carriers that currently operate in the PCS band would be more likely to place a higher value on obtaining 10 MHz in the 1.9 GHz band than 10 MHz in the 2.1 GHz band.

The record establishes a value of the 1.9 GHz band at between $4.6 and $5.3 billion. Kane Reece Associates, which is the only professional appraisal firm that has submitted an appraisal to the FCC that is consistent with industry practice, appraised that spectrum at $5.28 billion.[11] Three investment firms (including one with a substantial equity stake in Nextel) put the fair market value of the 1.9 GHz spectrum at $4.6, $4.8 and $5.2 billion, respectively.[12] Verizon Wireless has asked the FCC to auction the 1.9

[10] To illustrate this point, it is instructive to look at the costs of cellular and PCS equipment. While cellular and PCS operate in substantially different frequency bands, the costs of network and customer equipment are virtually identical.

[11] *See* Ex Parte Letter from Verizon Wireless, which includes *"Determination of the Fair Market Value of the Certain Portions of FCC Licensed Wireless Spectrum Proposed for Realignment by Nextel Communications, Inc. Under FCC Docket No. 02-55 as of December 31, 2002,"* Appraisal by Kane Reece Associates, WT Docket No. 02-55, Oct. 27, 2003.

[12] *See "Logjam Breaks on FCC Consideration of Nextel Spectrum Swap,"* Report of Legg Mason, March 10, 2004; *see also "Nextel Communications, Inc., Moving Toward a Conclusion?"* Report of Merrill Lynch, March 10, 2004; *see also "Wireless: NXTL (U/C) & FCC Moving Towards Negotiated Agreement on Spectrum Issues,"* report of Goldman Sachs, October 5, 2003.

GHz band and stated that it would open the bidding in an immediate auction for a nationwide 1.9 GHz license at $5.0 billion.

Information that is already in the record supports a valuation of the 2.1 GHz spectrum in the range of $4.5 billion. A valuation can be derived from Nextel's original proposal. Nextel proposed to contribute 4 MHz at 700 MHz, 2.5 MHz at 800 MHz, and 4 MHz at 900 MHz in exchange for 10 MHz of spectrum at 2.1 GHz. One can presume that Nextel believed the 2.1 GHz spectrum to have a value that at least equals the value of the 700, 800, and 900 MHz spectrum that it would contribute plus any costs that Nextel would incur to facilitate realignment.[13] Using the spectrum blocks that Nextel proposed to contribute in both its 2001 White Paper and in its subsequent "Consensus Plan" proposal, and applying the values that Nextel ascribed to these spectrum blocks in its March 5, 2004 ex parte letter, Nextel's total contributions for receiving the 2.1 GHz spectrum is as follows:

700 MHz spectrum	=	$ 350 million
800 MHz spectrum	=	$1,440 million
900 MHz spectrum	=	$1,640 million
Costs to relocate Public Safety	=	$ 500 million[14]
Nextel's relocation costs	=	$ 550 million
Total "Contributions"	=	$4,480 million

From the information that Nextel itself has filed, the FCC can conclude that Nextel believed the 2.1 GHz spectrum to be worth at least $4.48 billion. Otherwise, Nextel would have been advocating a proposal that would cost its own shareholders value – something we doubt any company would propose.

Given Nextel's own estimations, the additional record evidence presented in this proceeding, and the technical and operational comparability of 2.1 GHz spectrum relative to 1.9 GHz, CTIA believes it is reasonable for the Commission to consider the fair market value of the 2.1 GHz spectrum to be in the range of $4.5 billion. This is entirely consistent with the CTIA April 29th proposal, in which Nextel contributes at least $3 billion to a Public Safety Trust Fund and the 2.5 MHz at 800 MHz it proposes in the "Consensus Plan," and receives spectrum at 2.1 GHz in exchange.

[13] Indeed, in its November 21, 2001 press release announcing its White Paper proposal, Nextel indicated that under the proposal, "Nextel would maintain its net spectrum allocation, and does not anticipate any adverse impact on its ability to serve its existing or future customers."

[14] Subsequent to its original proposal, Nextel raised the amount it was prepared to contribute to the rebanding effort from $500 million to $850 million. Nextel's 1.9 GHz proposal included commitments to make available up to an additional $200 million for public safety relocation and a separate $150 million fund to pay the relocation costs of other 800 MHz incumbents. Since none of the other elements of its own "value for value" proposal changed, this suggests that it places the value of the 1.9 GHz today at least $350 million above the value of the 2.1 GHz spectrum, i.e., $4.93 billion – very close to the Kane Reece value for the 1.9 GHz band, $5.28 billion.

E. NOTICE

As CTIA noted in its April 29th *ex parte,* any suggestion that there is an inadequate record to support a decision to use the 2.1 GHz band in this proceeding is refuted by Nextel's own submissions.[15] Moreover, the general characteristics of the 2020-2025 MHz and 2150-2200 MHz bands have been extensively examined in two related proceedings at the Commission, the proceeding examining spectrum for AWS, and the proceeding considering the appropriate use for Mobile Satellite Service ("MSS") spectrum that has been reallocated from MSS to other uses.[16]

The record in this proceeding, not to mention the AWS and MSS proceedings, is certainly sufficient to ensure that the legal requirements of the Administrative Procedure Act ("APA") have been fully met if the agency elects to use 2.1 GHz spectrum for Nextel. The APA requires that the Commission give advance notice of a proposed rulemaking by publishing in the Federal Register a notice containing "either the terms or substance of the proposed rule or a description of the subjects and issues involved." In this case, the Commission specifically raised in the Notice of Proposed Rulemaking initiating this proceeding the proposal to use spectrum in the 2.1 GHz band as replacement spectrum for Nextel. The Commission has also complied with the APA requirement that it "give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity for oral presentation." Nextel submitted responsive comments supporting the use of spectrum at 2.1 GHz as replacement spectrum and other parties offered their views. Nothing more is required under the APA.

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[15] *See* CTIA Proposal at p. 4-5.

[16] *See, e.g.,* Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Services, including Third Generation Wireless Systems, ET Docket No 00-258, Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service, ET Docket No; 95-18, Establishment of Policies and Service Rules for the Mobile-Satellite Service in the 2 GHz band, IB Docket No. 99-81, *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking,* 15 FCC Rcd 16043 (2001); Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems, ET Docket No. 00-258, The Establishment of Policies and Service Rules for the Mobile-Satellite Service in the 2 GHz Band, IB Docket No. 99-81, *Third Report and Order, Third Notice of Proposed Rulemaking and Second Memorandum Opinion and Order*, FCC 03-16 (rel. Feb. 10, 2003).

In conclusion, the record in this proceeding, as well as in the AWS and MSS Reallocation proceedings, indicates that the 2.1 GHz band is suitable replacement spectrum for what Nextel would give up (in spectrum and in contributions toward the rebanding process) to facilitate realignment of the 800 MHz band. The 1.9 GHz and 2.1 GHz bands are technically and operationally comparable and both bands will support commercial mobile services, including advanced wireless services that require contiguous spectrum. CTIA submits that providing Nextel with the spectrum it originally requested in the 2.1 GHz band, along with the other proposals contained in its April 29th *ex parte*, would be the most equitable solution to the challenges posed in this proceeding that would provide Public Safety with certain and adequate funding to pay for relocation.

Respectfully Submitted,

Diane Cornell

Diane J. Cornell
Vice President, Regulatory Policy
CTIA

cc: Chairman Michael Powell
Commissioner Kathleen Abernathy
Commissioner Michael Copps
Commissioner Kevin Martin
Commissioner Jonathan Adelstein
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